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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,782	04/20/2001	Inaki Eizmendi	53807-00008USPT	2003

7590 12/16/2004  
JENKENS & GILCHRIST, LLP  
1445 ROSS AVENUE  
SUITE 3200  
DALLAS, TX 75202

EXAMINER

TRAN, CON P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.:

09/839,782

Applicant(s)

EIZMENDI, INAKI

Examiner

Con P. Tran

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-25 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 11-25 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 11-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art, Back Ground of the Invention (hereinafter, "Admission") in view of Pearson, Jr. U.S. Patent 4,297,643.

Regarding **claim 11**, Admission teaches a buzzer driving circuit for minimizing noise in a communication device (see Admission, Figs. 2, 3; page 2, lines 21-23), the buzzer driving circuit comprising:

a buzzer coupled to a voltage source (VBATT, Fig. 3; page 7, lines 4-5);

Admission further discloses to minimize noise generated by the buzzer (page 2, lines 21-23).

However, Admission does not explicitly disclose using plurality of impedance components comprises at least one resistor and at least one capacitor coupled in series; wherein a value of the at least one resistor is selected so as to minimize noise generated by the buzzer. Using impedance to minimize unwanted noise signals in a

circuit is well known in the electronics art as evidenced by Pearson, Jr. (see col. 1, line 51 – col. 2, line 3).

Pearson, Jr. teaches a coupling network (11, Fig. 2) having plurality of impedance components including resistor (17) and capacitor (19) coupled in series (col. 2, lines 31-39); wherein a value of the resistor (17) is selected (col. 2, lines 47-54) so as to minimize noise in the circuit (col. 1, lines 51-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a coupling network of Pearson, Jr. teaching with buzzer driving circuit of Admission such that the coupling network being coupled to ground would have been expected to have minimized noise in a communication device for purpose of enhancement tone of signal being conveyed, as suggested by Pearson, Jr. in column 2, lines 8-12.

Regarding **claim 12**, Admission in view of Pearson, Jr. teaches a buzzer driving circuit of claim 11. However, Admission in view of Pearson, Jr. does not explicitly disclose wherein the buzzer noise is minimized via a generated acoustic output which is opposite in polarity and equal in magnitude to the buzzer noise. Nevertheless, as would have been well known in the art at the time the invention was made, those of ordinary skill in the art would have been able to recognize that capacitor (19, see Pearson Jr., Fig. 2) of Admission in view of Pearson, Jr. discharges a current to inductor of the buzzer to generate acoustic output which is opposite in polarity and equal in magnitude to the buzzer noise.

Regarding **claims 13-14**, Admission in view of Pearson, Jr. teaches the buzzer driving circuit of claim 11, wherein a resistance of the buzzer ( $R_{\text{buzzer}}$ ) is less than a resistance of the at least one resistor ( $R_{650}$ ); and wherein a resistance of the buzzer ( $R_{\text{buzzer}}$ ) is less than a resistance of the at least one resistor ( $R_{650}$ ). Since magnitude of acoustic output equals to magnitude of buzzer noise, and buzzer constant is very large in comparison to buzzer-to-PCB coupling constant (see Admission pages 1-2), ( $R_{650}$ ) must be very large in comparison to ( $R_{\text{buzzer}}$ ).

Regarding **claim 15**, Admission in view of Pearson, Jr. teaches a buzzer driving circuit of claim 14, wherein a current flowing through the buzzer ( $I_{\text{buzzer}}$ ) is approximately equal to a voltage across the voltage source ( $V_{\text{batdrop}}$ ) divided by the resistance of the at least one resistor ( $R_{650}$ ) since ( $R_{650}$ ) being very large in comparison to ( $R_{\text{buzzer}}$ ).

Regarding **claim 16**, Admission in view of Pearson, Jr. teaches a buzzer driving circuit of claim 15, wherein ( $V_{\text{batdrop}}$ ) is equal to a non-constant loop current ( $I_{\text{loop}}$ ) times an internal resistance of the voltage source ( $R_{\text{int}}$ ) since battery supplies current ( $I_{\text{loop}}$ ) to the loop (see Admission, page 2, lines 5-20).

Regarding **claim 17**, Admission in view of Pearson, Jr. teaches a buzzer driving circuit of claim 16, wherein:

( $R_{650}$ ) is equal to ( $R_{\text{int}}$ ) multiplied by a ratio of  $K_1$  to  $K_2$ ;

$K_1$  is a constant determined by characteristics of the buzzer; and

$K_2$  is a constant determined by coupling between the buzzer and a circuit board of the communication device. Since magnitude of acoustic output equals to magnitude of buzzer noise, and buzzer constant is very large in comparison to buzzer-to-PCB coupling constant (see Admission pages 1-2), ( $R_{650}$ ) must be very large in comparison to ( $R_{\text{buzzer}}$ ). In other word, ( $R_{650}$ ) is considered a total resistance of ( $R_{650}$ ) and ( $R_{\text{buzzer}}$ ).

Regarding **claims 18-24**, these claims merely reflect the method to the apparatus claim of claims 11-17 and are therefore rejected for the same reasons.

3. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art, Back Ground of the Invention (hereinafter, "Admission") in view of Pearson, Jr. U.S. Patent 4,297,643, and further in view of daSilva U.S. Patent 6,445,937.

Regarding **claim 25**, Admission teaches a method of reducing noise in a communication device (see Admission, Figs. 2, 3; page 2, lines 21-23), the method comprising:

determining of an amount of current ( $I_{\text{buzzer}}$ ) driven from a battery through a power amplifier of the communication device; minimizing buzzer noise (see Admission, Figs. 2, 3; page 2, line 16 – page 3, line 4).

However, Admission does not explicitly disclose generating, based on the determined amount of current, of an acoustic output wherein the generated acoustic output is opposite in polarity and equal in magnitude to buzzer noise generated in the communication device due to a non-constant current; and canceling the noise via the generated acoustic output.

Pearson, Jr. teaches a coupling network (11, Fig. 2) having plurality of impedance components including resistor (17) and capacitor (19) coupled in series (col. 2, lines 31-39); wherein a value of the resistor (17) is selected (col. 2, lines 47-54) so as to minimize noise in the circuit (col. 1, lines 51-60). In addition, as would have been well known in the art at the time the invention was made, those of ordinary skill in the art would have been able to recognize that capacitor (19, see Pearson Jr., Fig. 2) of Admission in view of Pearson, Jr. discharges a current to inductor of the buzzer to generate acoustic output which is opposite in polarity and equal in magnitude to the buzzer noise to cancel the buzzer noise.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a coupling network of Pearson, Jr. teaching with buzzer driving circuit of Admission such that the coupling network being coupled to ground would have been expected to have canceled the noise using acoustic output in a communication device for purpose of enhancement tone of signal being conveyed, as suggested by Pearson, Jr. in column 2, lines 8-12.

However, Admission in view of Pearson, Jr. does not explicitly disclose using a radio-frequency (RF) power-management application specific integrated circuit (ASIC)

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in determining an amount of current driven from a battery through a power amplifier of the communication device and generating acoustic output.

daSilva teaches a method for mobile phone power management which may be incorporated into a application specific integrated circuit using software (ASIC, col. 2, lines 29-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of daSilva teaching with the method of Admission, Pearson, Jr. in combination for purpose of providing extended battery life, as suggested by daSilva in column 2, line 20.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 11-25 have been considered but are moot in view of the new grounds of rejection.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cpt  
December 10, 2004

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XU MEI  
PRIMARY EXAMINER